Mr. Michael T. Davis WLPCS Pre-Calculus	Units 1.1 & 1.2 Quiz September 6-7, 2017

Name: Answers / Solutions

1. Write the graphed number set in both **inequality** and **interval** notation.

Inequality Notation: $x \le -1$

Interval Notation: $(-\infty, -1]$

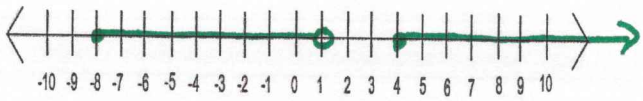
2. Write the graphed number set in both **inequality** and **interval** notation.

Inequality Notation: $-2 \le x < 5$

Interval Notation: $[-2, 5)$

3. Graph the set of numbers $[-8,1) \cup [4,\infty)$ and write the set in inequality notation:

$-8 \le x < 1$ or $x \ge 4$

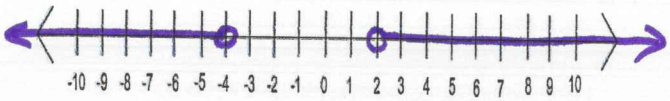


4. Solve the inequality $5 - x > 9$ *or* $5x - 13 > -3$ and graph the solution set.

$5 - x > 9$ or $5x - 13 > -3$

$-x > 4$ or $5x > 10$

$x < -4$ or $x > 2$



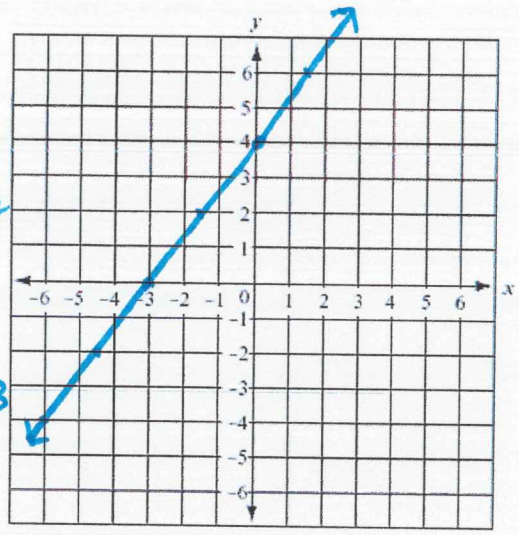
5. Solve the inequality $1 < \frac{1}{2}x + 5 \le 8$ and graph the solution set.

$-5 \quad -5 \quad -5$

$-4 < \frac{1}{2}x \le 3$

$-8 < x \le 6$

6. Graph $4x-3y=-12$ (plot several points and draw your line neatly). Show work.



Let $x=0$ $(0,y)$

$4(0)-3y=-12$ $-3y=-12$ $y=4$

$(0,4)$

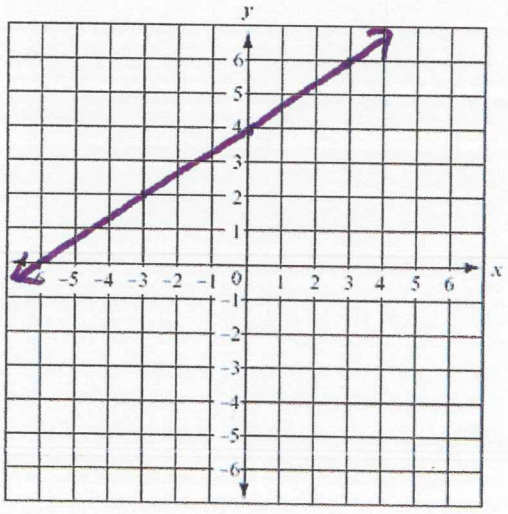
Let $y=0$

$4x-3(0)=-12$ $4x=-12$ $x=-3$

$(-3,0)$

The slope is $m=\frac{4}{3}$

7. Given the line shown, write an equation in slope-intercept form $y=mx+b$. Show work.



$y=\frac{2}{3}x+4$ ✓

8. Determine an equation of the line containing the points $(-6,-4)$ & $(4,1)$ in point-slope form $y-y_1=m(x-x_1)$ first, then convert the equation to slope-intercept form. Show work.

$m=\frac{-4-1}{-6-4}=\frac{-5}{-10}=\frac{1}{2}$ $y=mx+b$

$(4,1)$ $y-1=\frac{1}{2}(x-4)$ ✓

$y-1=\frac{1}{2}x-2$

$y=\frac{1}{2}x-1$ ✓

9. Write an equation of the line containing the points $(3,-5)$ and $(3,1)$ in the appropriate form. Show work.

$m=\frac{-5-1}{3-3}=\frac{-6}{0}=$ undefined

Vertical line equation: $x=3$ ✓

10. Determine an equation of the line containing the points $(-3,-11)$ and $(6,1)$ in slope-intercept form first, then convert the equation to general form $Ax+By=C$. Show work.

$m = \frac{-11-1}{-3-6} = \frac{-12}{-9} = \frac{4}{3}$

$y = \frac{4}{3}x + b$

$(6,1)\quad 1 = \frac{4}{3}(6) + b$

$1 = 8 + b$

$-7 = b$

$y = \frac{4}{3}x - 7$ ✓

$3y = 4x - 21$

$-4x + 3y = -21$

or

$4x - 3y = 21$ ✓

11. The two given equations represent lines. Are the lines parallel or Perpendicular or neither? Show work. Explain briefly why. $2x-3y=9$ & $6x+4y=20$. Show work.

$2x - 3y = 9$

$-3y = -2x + 9$

$\frac{-3y}{-3} = \frac{-2}{-3}x + \frac{9}{-3}$

$y = \frac{2}{3}x - 3 \quad m = \frac{2}{3}$

$6x + 4y = 20$

$\frac{4y}{4} = \frac{-6x}{4} + \frac{20}{4}$

$y = -\frac{3}{2}x + \frac{10}{2} \quad m = -\frac{3}{2}$

The slopes are opposite reciprocals, so the lines are ⊥.

12. Line A has equation $y+10=\frac{3}{5}(x-11)$. Line B contains the point $(-10,14)$ and is parallel to line A. Determine an equation for line B in any form you choose. Show work.

slope of line B is $m = \frac{3}{5}$

$y - 14 = \frac{3}{5}(x - -10)$

$y - 14 = \frac{3}{5}(x + 10)$

13. Line A has equation $y-7=-4(x+1)$. Line B contains the point $(-10,14)$ and is perpendicular to line A. Determine an equation for line B in any form you choose. Show work.

slope of line B is $m = \frac{1}{4}$

$y - 14 = \frac{1}{4}(x - -10)$

$y - 14 = \frac{1}{4}(x + 10)$ ✓